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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/407,184	09/27/1999	FARSHAD KHORRAMI	457020-2250.	2412

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FROMMER LAWRENCE & HAUG  
745 FIFTH AVENUE- 10TH FL.  
NEW YORK, NY 10151

EXAMINER

CONTEE, JOY KIMBERLY

ART UNIT	PAPER NUMBER
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2686

17

DATE MAILED: 06/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/407,184

Applicant(s)

KHORRAMI ET AL.

Examiner

Joy K Contee

Art Unit

2686

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 13,19,25,26,28-37,40-43,49 and 50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37,40-43,49 and 50 is/are allowed.
- 6) ☒ Claim(s) 13,19,25,26,28-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

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## **DETAILED ACTION**

### ***Response to Amendment***

1. The indicated allowability of claims 13,19,25,26,28-36 is withdrawn in further view of Edwards et al., U.S. Patent NO. 4,684,929, previously used. Rejections based on the newly cited reference follow. In the last office action Examiner inadvertently failed to include the aforementioned in the rejection based on Edwards, which reads on the limitation which incorporates a microwave frequency range, that is found in at least the independent claims 13,15,25,26 and 28.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
3. Claims 13,25,26 and 28-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spillman, Jr., U.S. Patent No. 5,440,300, previously used, in view of Edwards et al. ("Edwards"), U.S. Patent No. 4,684,929, newly discovered.

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Regarding claims 13 and 25, Spillman, Jr. discloses a wireless communication system comprising:

a number of actuators (and devices each including at least one of a sensor and an actuator, and/or sensor, each having one or more antenna associated therewith and being adaptable to be located on or within an element, each sensor being adaptable to detect at least one respective predetermined characteristic (e.g., stress, strain or vibration, cracks or separation) of said element) each having one or more antenna associated therewith and being adaptable to be located on or within an element and being adaptable for causing said element to deform in a desired manner when actuated (col. 2, line 15 to col. 3, line 11); and

control transceiver means (i.e., RF coupling 68 in Fig. 9C), operable to communicate in a wireless manner with said number of actuators (and sensors), for supplying a modulated command signal, material characteristics of the respective actuator or actuators cause said modulated command signal to be demodulated and said element to achieve the desired deformation (i.e., reads on expansion and contraction) (and RF signal to at least one antenna)(col. 2, line 52 to col. 3, line 41 and col. 4, lines 27-37 and col. 5, lines 7-16);

whereby, in response to said modulated command signal, (an RF signal, the respective sensor or sensors and the at least one antenna associated therewith generate by use of electromagnetic coupling there between a characteristic signal indicative of a detected respective characteristic or characteristics and modulate the same so as to obtain an output signal and

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transmit said output signal) material characteristics of the respective actuator or actuators cause said modulated command signal to be demodulated and said element to achieve the desired deformation (col. 2, line 40 to col. 3, line 11).

Spillman, Jr. fails to explicitly disclose wherein said control transceiver means communicates with each said actuator or actuators ( and sensor) over a microwave frequency range.

In a similar field of endeavor, Edwards provides evidence wherein said control transceiver (i.e., transmitter 4, see Fig. 1) means communicates with each said actuator (reads on reflector) sensor (i.e., reads on reflector 8) over a microwave frequency range (col. 4, lines 3-13).

At the time of the invention it would have been obvious to one of ordinary skill in the art to have modified Spillman, Jr. to include antennae using microwave frequency ranges since it is known in the art that communication systems using the highly directive microwave frequencies are seemingly superior to other types of systems in that the properties of microwaves are similar to the properties of light waves.

Regarding claim 19, 26 and 28 Spillman, Jr. discloses a wireless communication system comprising:

a number of actuators (and devices each including at least one of a sensor and an actuator, and/or sensor, each having one or more antenna associated therewith and being adaptable to be located on or within an element, each sensor being adaptable to detect at least one respective

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predetermined characteristic (e.g., stress, strain or vibration, cracks or separation) of said element) each having one or more antenna associated therewith and being adaptable to be located on or within an element and being adaptable for causing said element to deform in a desired manner when actuated (col. 2, line 15 to col. 3, line 11); and

control transceiver means (i.e., RF coupling 68 in Fig. 9C), operable to communicate in a wireless manner with said number of actuators (and sensors), for supplying a modulated command signal, material characteristics of the respective actuator or actuators cause said modulated command signal to be demodulated and said element to achieve the desired deformation (i.e., reads on expansion and contraction) (and RF signal to at least one antenna)(col. 2, line 52 to col. 3, line 41 and col. 4, lines 27-37 and col. 5, lines 7-16);

whereby, in response to said modulated command signal, (an RF signal, the respective sensor or sensors and the at least one antenna associated therewith generate by use of electromagnetic coupling there between a characteristic signal indicative of a detected respective characteristic or characteristics and modulate the same so as to obtain an output signal and transmit said output signal) material characteristics of the respective actuator or actuators cause said modulated command signal to be demodulated and said element to achieve the desired deformation (col. 2, line 40 to col. 3, line 11).

Spillman, Jr. fails to explicitly disclose wherein each said antenna is a micro-strip type antenna.

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In a similar field of endeavor, Edwards discloses wherein each said antenna (i.e., reads on phased array of antennae) is a micro-strip type antenna (col. 4, lines 18-27).

At the time of the invention it would have been obvious to one of ordinary skill in the art to have modified Spillman, Jr. to include use of micro-strip type antennae since it is known that it is typically less expensive to use micro-strip antennae, as taught in Edwards (col. 4, line 18-20).

Regarding claim 29, Spillman, Jr. discloses a system as modified by Edwards as in claim 28, wherein said control means includes transceiver means for communicating in a wireless manner with each sensor and actuator.

Regarding claim 30, Spillman, Jr. as modified by Edwards as in claims 29, discloses wherein said transceiver means communicates with each sensor and said actuator over a microwave frequency range (see Edwards, col. 4, lines 3-13).

At the time of the invention it would have been obvious to one of ordinary skill in the art to have modified Spillman, Jr. to include antennae using microwave frequency ranges since it is known in the art that communication systems using the highly directive microwave frequencies are seemingly superior to other types of systems in that the properties of microwaves are similar to the properties of light waves.

Regarding claim 31, Spillman, Jr. as modified by Edwards as in claim 28, discloses wherein the processing means is located on or within structure (see Spillman, Jr., col. 1, lines 33-44).

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Regarding claim 32, Spillman, Jr. as modified by Edwards as in claim 28, wherein the processing means is not located on or within said structure and wherein said processing means transmits each said processed signal to the appropriate one or ones of the actuators in a wireless manner (see Spillman, Jr. , col. 4,lines 65-68).

Regarding claim 33, Spillman, Jr. as modified by Edwards as in claim 28, discloses wherein at least one of said number of sensors and said number of actuators includes only passive electronic devices (see Spillman, Jr., col. 4,lines 12-19).

Regarding claim 34, Spillman, Jr. as modified by Edwards as in claim 28, discloses wherein at least one of said number of sensors and said number of actuators includes a substrate portion inherently having non-linear material characteristics (see Spillman, Jr., col. 2,lines 52-64).

Regarding claim 34, Spillman, Jr. as modified by Edwards as in claim 34, wherein said substrate portion is a piezoelectric ceramic material (see Spillman, Jr. col. 5,lines 22-25).

Regarding claim 36, Spillman, Jr. as modified by Edwards as in claim 28, wherein the at least one predetermined characteristics includes at least one of strain, acceleration, deformation and pressure (see Spillman, Jr., col. 5,lines 22-51).

***Allowable Subject Matter***

4. Claims 37,40-43 and 49-50 are allowed.



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***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joy K. Contee whose telephone number is (703) 308-0149, M-F, 5:30 to 2:00 p.m.

If attempts to reach the examiner are not successful, the examiner's supervisor, Marsha Banks-Harold can be reached on (703)305-4379.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703)306-0377.

**Any response to this action should be mailed to:**

Commissioner of Patents and Trademarks

Washington, D.C. 20231

**or faxed to:**

(703) 872-9306, (for formal communications intended for entry or for informal or draft communications, please label "PROPOSED" or "DRAFT")

**Hand-delivered responses should be brought to**

**Crystal Park II**


**Sixth Floor (Receptionist)**

**2121 Crystal Drive**

**Arlington, VA**

  
Joy K. Contee

June 23, 2004

  
CHARLES APPIAH  
PRIMARY EXAMINER